

Nets for the Cube

A cube can be made out of a single piece of paper cut in the shape of a cross. The cross is made of six squares, so that when you fold it up, a cube is formed (see figure 1). The cross is a net for a cube.

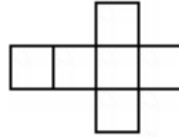


Figure 1

Any flat configuration of polygons, joined along whole edges, which can be folded up to make a polyhedron is called a net for the polyhedron. In general, a polyhedron can have many different nets, although of course all of them have the same kinds and numbers of polygons. Figure 2 shows three more nets for a cube.

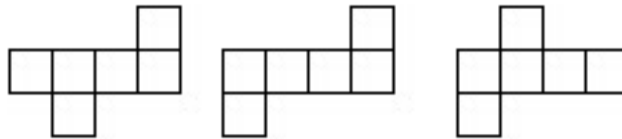


Figure 2

There are many ways to design a net for a cube. The rule is that it must be possible to cut the net out in one piece, so in a net each square must be joined to another square along a common edge. Not every configuration of six squares will fold up into a cube.

Which of the following are nets for a cube?

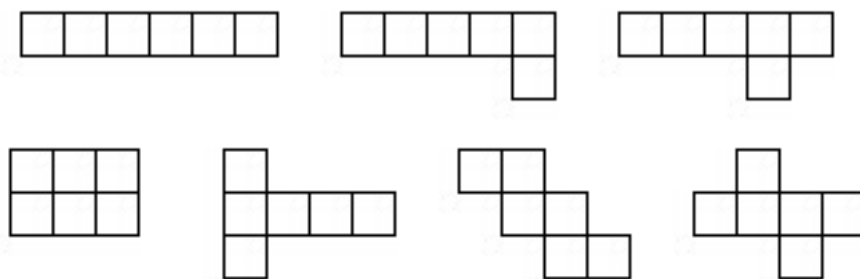


Figure 3